AMENDMENT

In the Claims:

Please amend the claims as follows:

Please replace the presently pending claims with the following claims:

1. (Twice amended) A method to provide a subject with glycoprotein hormone activities which method comprises administering to a subject in need of said activities a composition of the formula:

$\beta^2 \approx \alpha\text{-(linker)}_m\text{-}\beta^1$ (1); or

$\beta^1\text{-(linker)}_m\text{-}\alpha \approx \beta^2$ (2)

wherein each of β^1 and β^2 has the amino acid sequence of the β subunit of a vertebrate glycoprotein hormone, or a variant thereof;

"α" has the amino acid sequence of the α subunit of a vertebrate glycoprotein hormone or a variant thereof;

"linker" is a linker moiety; and

"≈" is a noncovalent link between α and β^2;

m is 0 or 1;

wherein each of β^1 and β^2 is the native β subunit of the same glycoprotein hormone or a variant thereof.

2. The method of claim 1 wherein β^1 and β^2 are native β subunits.

3. The method of claim 1 wherein β^1 and β^2 exhibit different biological half-lives.

4. (Amended) The method of claim 1 wherein one of β^1 and β^2 confers agonist activity and the other confers antagonist activity.

(Amended) The method of claim 1 wherein said subject is being treated ~~for~~ to enhance ~~d~~ fertility.

10 ~~6.~~ (Twice amended) The method of claim ~~5~~ 9 wherein

both β^1 and β^2 confer FSH agonist activity on said composition; or

C3 both β^1 and β^2 confer CG agonist activity; or

both β^1 and β^2 confer LH antagonist activity.

11 ~~7.~~ (Amended) The method of claim 1 wherein said subject is being treated so as to become infertile or to remain infertile.

C4 12 ~~8.~~ (Amended) The method of claim ~~7~~ 11 wherein both β^1 and β^2 confer FSH antagonist activity on said composition; or

wherein both β^1 and β^2 confer CG antagonist activity; or

wherein both β^1 and β^2 confer LH agonist activity.

13 ~~9.~~ The method of claim 1 wherein the subject is in need of treatment for polycystic ovarian disease.

14 ~~10.~~ (Twice amended) The method of claim ~~9~~ 13 wherein

both β^1 and β^2 confer FSH agonist activity; or

both β^1 and β^2 confer LH antagonist activity.

25 ~~11.~~ (Twice amended) A glycosylated or nonglycosylated composition of the formula

$\beta^2 \approx \alpha\text{-(linker)}_m\text{-}\beta^1$ (1); or

C5 $\beta^1\text{-(linker)}_m\text{-}\alpha \approx \beta^2$ (2)

wherein each of β^1 and β^2 has the amino acid sequence of the β subunit of a vertebrate glycoprotein hormone, or a variant thereof;

"α" has the amino acid sequence of the α subunit of a vertebrate glycoprotein hormone or a variant thereof;

"linker" is a linker moiety; and

"≈" is a noncovalent link between α and β^2;

m is 0 or 1;

wherein each of β^1 and β^2 is the native β subunit of the same glycoprotein hormone or a variant thereof.

30 ~~12.~~ (Twice amended) A pharmaceutical composition which regulates the glycoprotein hormone concentrations in a mammal which comprises an effective amount of the composition of the formula

$\beta^2 \approx \alpha\text{-(linker)}_m\text{-}\beta^1$ (1); or

$\beta^1\text{-(linker)}_m\text{-}\alpha \approx \beta^2$ (2)

in admixture with at least one pharmaceutically acceptable excipient; and

wherein each of β^1 and β^2 has the amino acid sequence of the β subunit of a vertebrate glycoprotein hormone, or a variant thereof;

C5 "α" has the amino acid sequence of the α subunit of a vertebrate glycoprotein hormone or a variant thereof;

"linker" is a linker moiety; and

"≈" is a noncovalent link between α and β^2;

each of m and n is independently 0 or 1;

wherein each of β^1 and β^2 is the native β subunit of the same glycoprotein hormone or a variant thereof.

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26 ~~21.~~ (Amended) The composition of claim 25 ~~11~~, wherein β^1 is FSHβ or a variant thereof and β^2 is FSHβ or a variant thereof.

27 ~~22.~~ (Amended) The composition of claim 25 ~~11~~, wherein β^1 is LHβ or a variant thereof and β^2 is LHβ or a variant thereof.

C6 28 ~~23.~~ (Amended) The composition of claim 25 ~~11~~, wherein β^1 is TSHβ or a variant thereof and β^2 is TSHβ or a variant thereof.

29 ~~24.~~ (Amended) The composition of claim 25 ~~11~~, wherein β^1 is CGβ or a variant thereof and β^2 is CGβ or a variant thereof.

Please cancel claims 25-28.

Please add the following claims:

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15 ~~29~~. (New) The method of claim 1, wherein both of β^1 and β^2 confer agonist activity.

20 ~~30~~. (New) The method of claim 1, where both of β^1 and β^2 confer antagonist activity.

D 5 ~~31~~. (New) The method ~~composition~~ of claim 4, wherein β^1 is FSHβ or a variant thereof and β^2 is FSHβ or a variant thereof.

D 6 ~~32~~. (New) The method ~~composition~~ of claim 4, wherein β^1 is LHβ or a variant thereof and β^2 is LHβ or a variant thereof.

D 7 ~~33~~. (New) The method ~~composition~~ of claim 4, wherein β^1 is TSHβ or a variant thereof and β^2 is TSHβ or a variant thereof.

D 8 ~~34~~. (New) The method ~~composition~~ of claim 4, wherein β^1 is CGβ or a variant thereof and β^2 is CGβ or a variant thereof.

C7 16 ~~35~~. (New) The method ~~composition~~ of claim 15 ~~29~~, wherein β^1 is FSHβ or a variant thereof and D β^2 is FSHβ or a variant thereof.

17 ~~36~~. (New) The method ~~composition~~ of claim 15 ~~29~~, wherein β^1 is LHβ or a variant thereof and D β^2 is LHβ or a variant thereof.

D 18 ~~37~~. (New) The method ~~composition~~ of claim 15 ~~29~~, wherein β^1 is TSHβ or a variant thereof and β^2 is TSHβ or a variant thereof.

D 19 ~~38~~. (New) The method ~~composition~~ of claim 15 ~~29~~, wherein β^1 is CGβ or a variant thereof and β^2 is CGβ or a variant thereof.

39. (New) The composition of claim 30, wherein β^1 is FSHβ or a variant thereof and β^2 is FSHβ or a variant thereof.

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40. (New) The composition of claim 30, wherein β^1 is LHβ or a variant thereof and β^2 is LHβ or a variant thereof.

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41. (New) The composition of claim 30, wherein β^1 is TSHβ or a variant thereof and β^2 is TSHβ or a variant thereof.

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42. (New) The composition of claim 30, wherein β^1 is CGβ or a variant thereof and β^2 is CGβ or a variant thereof.

43. (New) A method to enhance fertility in a subject being treated for enhanced fertility which method comprises administering to said subject a composition of the formula:

$\beta^2 \approx \alpha\text{-(linker)}_m\text{-}\beta^1$ (1); or

$\beta^1\text{-(linker)}_m\text{-}\alpha \approx \beta^2$ (2)

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wherein each of β^1 and β^2 has the amino acid sequence of the β subunit of a vertebrate glycoprotein hormone, or a variant thereof;

"α" has the amino acid sequence of the α subunit of a vertebrate glycoprotein hormone or a variant thereof;

"linker" is a linker moiety; and

"≈" is a noncovalent link between α and β^2;

m is 0 or 1;

with the proviso that when one of β^1 and β^2 is a CGβ agonist then the other is not an FSHβ agonist.

44. (New) The method of claim 43, wherein one of β^1 and β^2 confers FSH agonist activity and the other confers LH antagonist activity; or

one of β^1 and β^2 confers LH antagonist activity and the other confers CG agonist activity.